Check List the journal of biodiversity data

NOTES ON GEOGRAPHIC DISTRIBUTION

Check List 11(5): 1734, 9 September 2015 doi: http://dx.doi.org/10.15560/11.5.1734
ISSN 1809-127X © 2015 Check List and Authors

Fannia fusconotata and *Fannia sanihue* (Diptera: Fanniidae): first records in Uruguay and distribution extension

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Abstract: *Fannia fusconotata* (Rondani, 1868) and *Fannia sanihue* Domínguez & Aballay, 2008 are recorded for the first time in Uruguay, extending the Neotropical distribution of these taxa eastward in South America. The specimens were collected using modified Malaise traps located above pig carcasses in Pando, Canelones, Uruguay, from February to April 2011. This contribution is a part of the first study to be undertaken into forensic entomology in Uruguay.

Key words: Neotropical Region; Pampa; Canelones; distribution; range extension; new records

The genus *Fannia* Robineau-Desvoidy, 1830 (Diptera: Fanniidae) contains approximately 260 species, of which 66 occur in the Neotropical Region (Carvalho et al. 2003). Recently 28 new Neotropical species have been described, mainly from Argentina and Colombia (Couri 2004; Couri 2005; Couri and Winagraski 2005; Domínguez 2007; Domínguez and Aballay 2008, 2014; Quiroga and Domínguez 2010; Grisales et al. 2012). Adults are small (3–4 mm) usually light grey or dark brown or black; depending on the species the abdomen may be totally black or with yellow spots in the basal area (Velázquez et al. 2013). The Fanniidae are believed to be basically inhabitants of forests, and are relatively rare in open landscapes and wetlands (Carvalho et al. 2002; Domínguez and Pont 2014).

The medical and hygienic importance of some widely distributed species of *Fannia* are well known. A summary of cases of myiasis reported in the Neotropical Region can be found in Guimarães and Papavero (1999), nevertheless the medical and hygienic importance of most Southern South American species is unknown (Domínguez 2007). A few species of *Fannia* are known as secretophagous because they attack cattle in pastures as well as perspiring people (Chillcott 1961; Rozkošný et al. 1997), and this is the case for *F. fusconotata* (Rondani, 1868) from Argentina (Domínguez 2007). This species is also believed to cause myiasis in man and in cattle (Mazza and Oribe 1939; Oliva 1997). On the other hand, the importance of the family in forensic investigations is also well known since many species are prevalent in decomposing carcasses (Carvalho et al. 2000; Marchiori et al. 2000; Centeno et al. 2002; Aballay et al. 2012a, 2012b; Alves et al. 2014). However, only a few studies have examined their usefulness in forensic research (Matuszewski et al. 2010; Matuszewski et al. 2011; Aballay et al. 2012a). In particular, *F. sanihue* Domínguez & Aballay, 2008 and *F. fusconotata* have been found in experiments with pig carcasses in Argentina (Centeno et al. 2002; Aballay et al. 2008, Aballay et al. 2012a, 2012b). *F. sanihue* has been regarded as one of the *Fannia* species with higher potential as post-mortem interval (PMI) indicator (Aballay et al. 2012a).

After the original description of the female of *F. fusconotata* (Rondani 1868: 27), Domínguez (2007: 312) described the male of this species for the first time, both descriptions with specimens from the province of Mendoza in western Argentina. Afterward, Centeno et al. (2002) and Patitucci et al. (2011) reported this species from different localities in the province of Buenos Aires, Argentina, extending its range distribution further east in that country. Furthermore, Aballay et al. (2008) also reported *F. fusconotata* in the province of San Juan, expanding its range distribution towards the northwest in Argentina. *Fannia sanihue* was originally described from the province of Mendoza in Argentina (Domínguez and Aballay 2008); recently it has also been reported in the province of Buenos Aires (Patitucci et al. 2011) and was collected in the province of San Juan by Aballay (unpublished data). Here we report the first records of *F. fusconotata* and *F. sanihue* in Uruguay. This contribution

Figure 1. Female of *Fannia fusconotata* (Pando, Canelones, Uruguay). Photo by F.H. Aballay.

Figure 2. Female of *Fannia sanihue* (Pando, Canelones, Uruguay). Photo by F.H. Aballay.

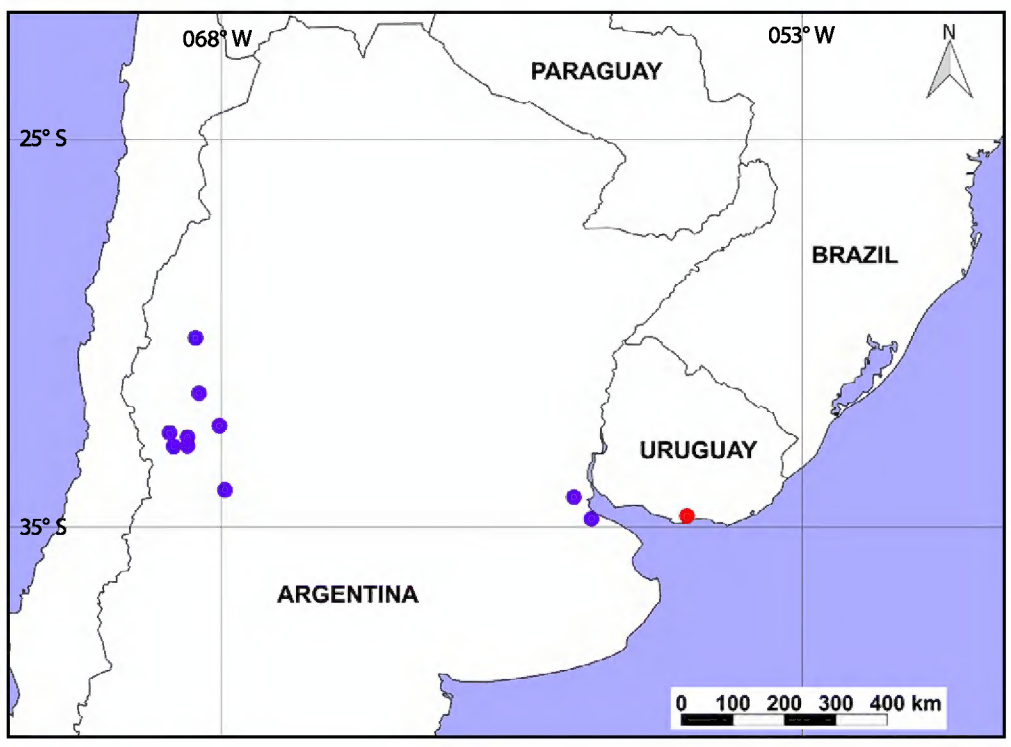

Figure 3. Distribution of *F. fusconotata*. Blue dots are historic localities. Red dot is the new record.

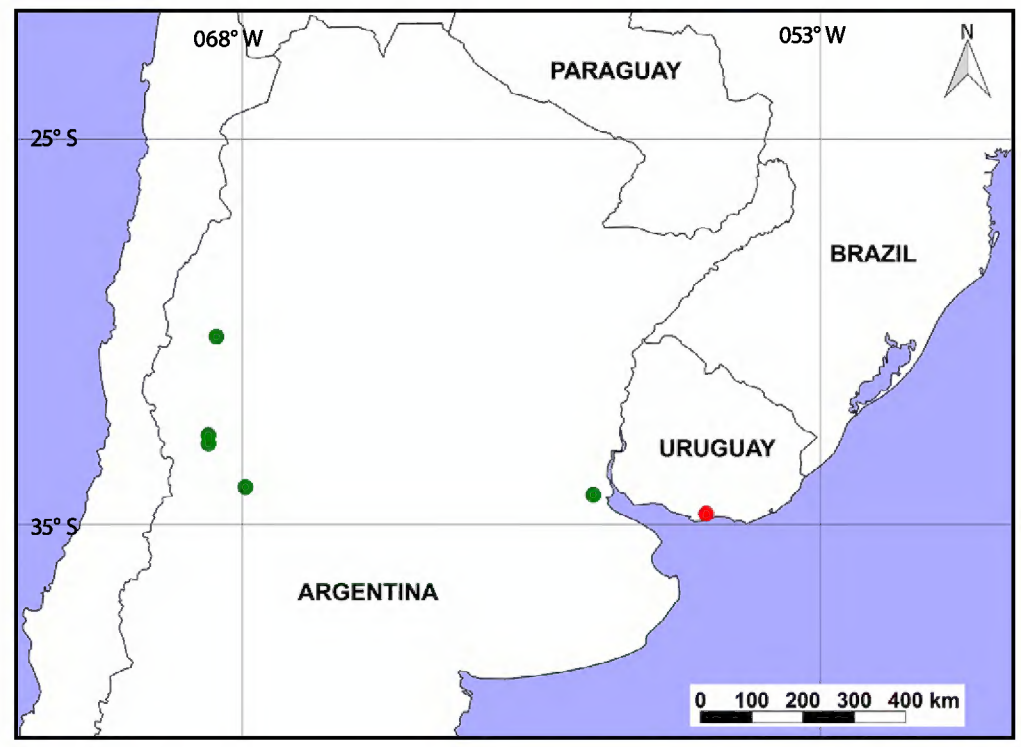

Figure 4. Distribution of *F. sanihue*. Green dots are historic localities. Red dot is the new record.

is part of a forensic entomology study, which is the first to be undertaken in Uruguay, using pig carcasses as experimental model.

The experiment was carried on in a plantation of *Eucalyptus globulus* in a semirural area in Pando, Canelones, Uruguay (34°42′37″ S, 055°58′24″ W). Individuals of both species were collected using modified Malaise traps located above two pig carcasses (*Sus scrofa* L.) from late summer (February) to early autumn (April) of 2011. Two hundred fifty specimens of *F. sanihue* (6 ♂ and 244 ♀) were collected throughout most of the decomposition process while only five females of *F. fusconotata* were collected on 26–27 February, at the end of the active decay stage. Voucher specimens were deposited pinned in the Entomological Collection of Facultad de Ciencias, Universidad de la República (Montevideo): FCE-D N° 1-10 (specimens of *F. sanihue*); FCE-D N° 11–12 (specimens of *F. fusconatata*). Other voucher specimens were deposited in the entomological collection of the IADIZA (Mendoza, Argentina): CEI 10514–10518 (specimens of *F. sanihue*); CEI 10519 (specimen of *F. fusconatata*).

The specimens were identified by Domínguez and Aballay. *F. fusconotata* (Figure 1) can be identified by its small size, yellow legs and hind coxa bare at apex of posterior margin (Domínguez 2007). On the other hand, *F. sanihue* (Figure 2) is easily recognizable by its black legs in combination with the yellow markings in the first segments of the abdomen and by the absence of the subapical dorsal setae on the hind tibia (Domínguez and Aballay 2008).

Until now, *F. sanihue* and *F. fusconotata* have been recorded in temperate and arid open shrublands, and in open woodlands, associated to pig carcasses and cattle liver (Centeno et al. 2002; Domínguez 2007; Domínguez and Aballay 2008; Patitucci et al. 2011; Aballay et al. 2012a, 2102b). According to previous studies (Patitucci et al. 2011; Aballay et al. 2012a), *F. fusconotata* tends to

prefer open sunny habitats rather than shaded habitats; our record of few individuals of this species in the shaded carcasses is consistent with these observations.

The overlaid known distribution of both species (Figures 3 and 4) extends two distinct biogeographic provinces, which are Monte (arid climate) and Pampa (humid temperate climate) but within a narrow latitudinal range (30–35° S). This report adds new records to the previously known distribution of *F. sanihue* and *F. fusconotata* in South America.

ACKNOWLEDGEMENTS

This paper is part of the MSc thesis of the first author, at Facultad de Ciencias UdelaR. PEDECIBA (Programa de Desarrollo de Ciencias Básicas) provided logistical and financial support for work. The authors specially thank M.Sc. Gabriela Bentancur for the assistance in the preparation of the maps.

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Authors' contribution statement: MR and PGV collected the data, MR, PGV and MCD wrote the text, FHA and MCD identified the specimens, FHA and PGV made the maps and FHA took the photographs.

Received: 21 July 2015
Accepted: 20 August 2015
Academic editor: Fabio Laurindo da Silva